



Title: LOW LOSS TUNABLE FERRO-ELECTRIC  
DEVICE AND METHOD OF CHARACTERIZATION

Inventor: TONCICH, STANLEY S.

Filing Date: 12/31/2003

Appl. No.: 10/750,304

Atty. Doc. No.: UD1 00001

Approved  
for entry  
DI 4/8/05

1/6

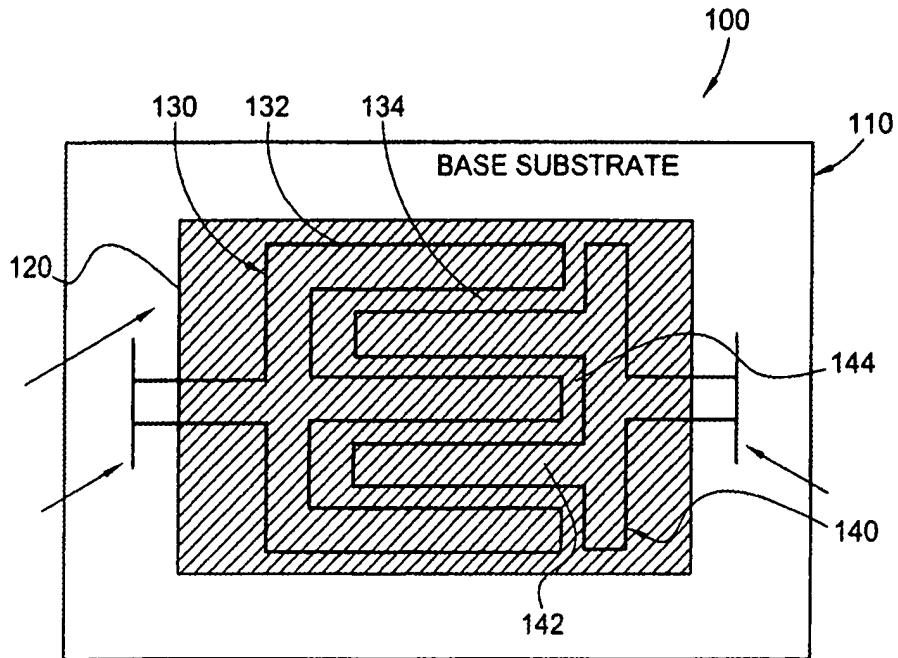


FIG. 1

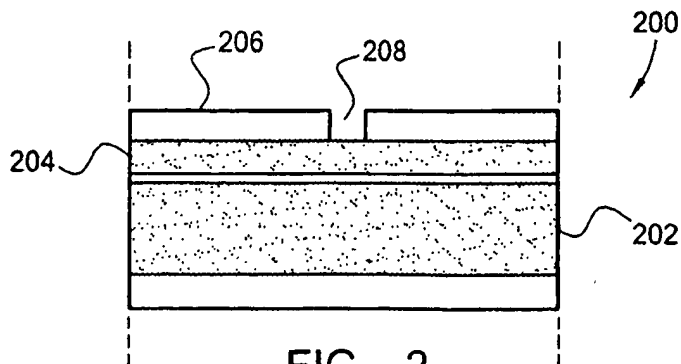


FIG. 2



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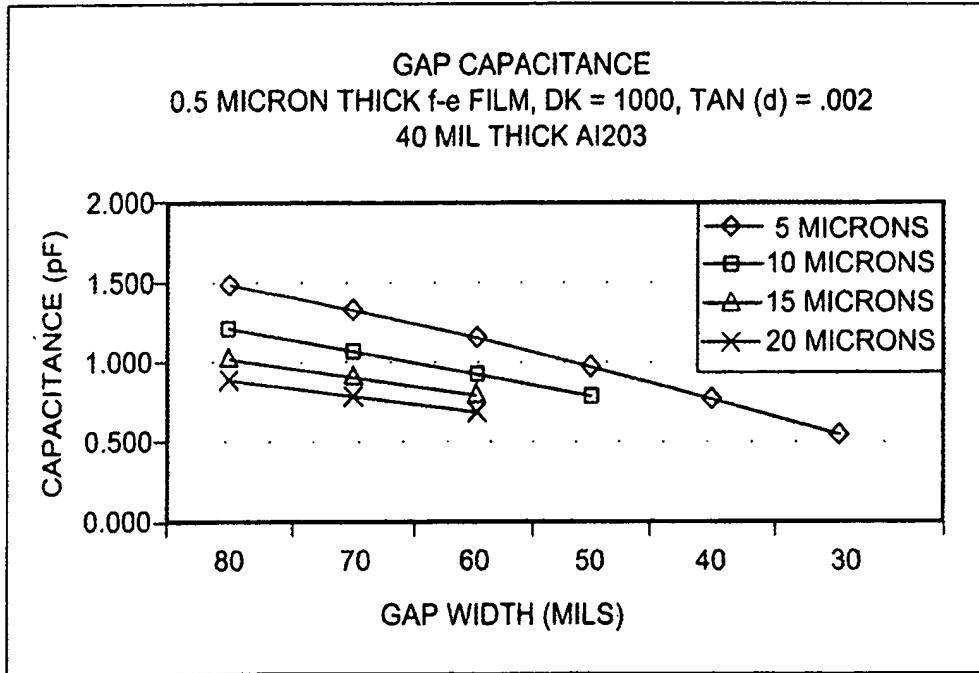


FIG. 3

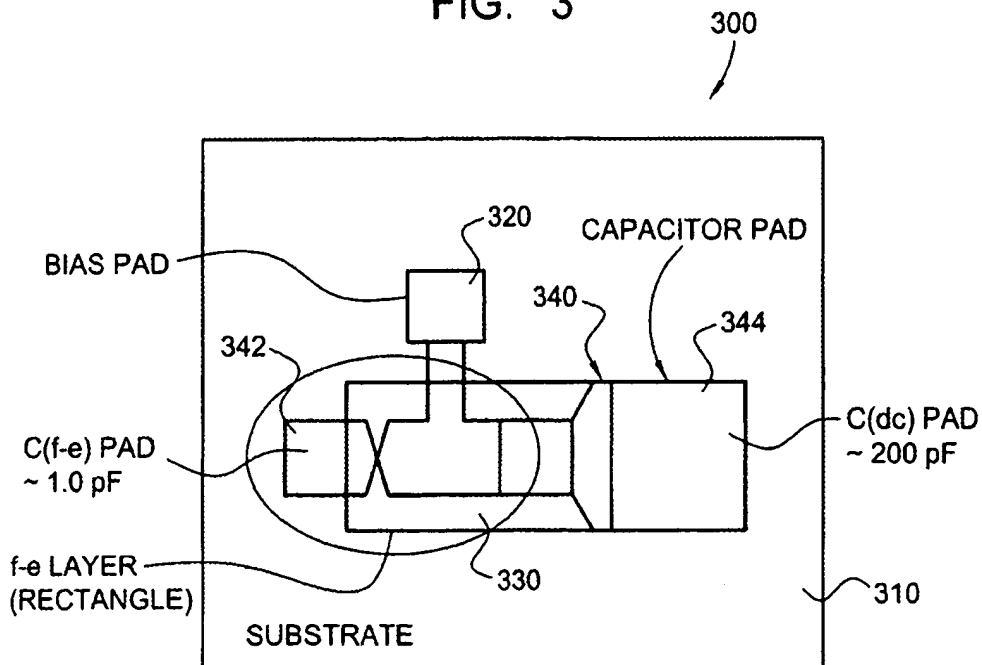


FIG. 4

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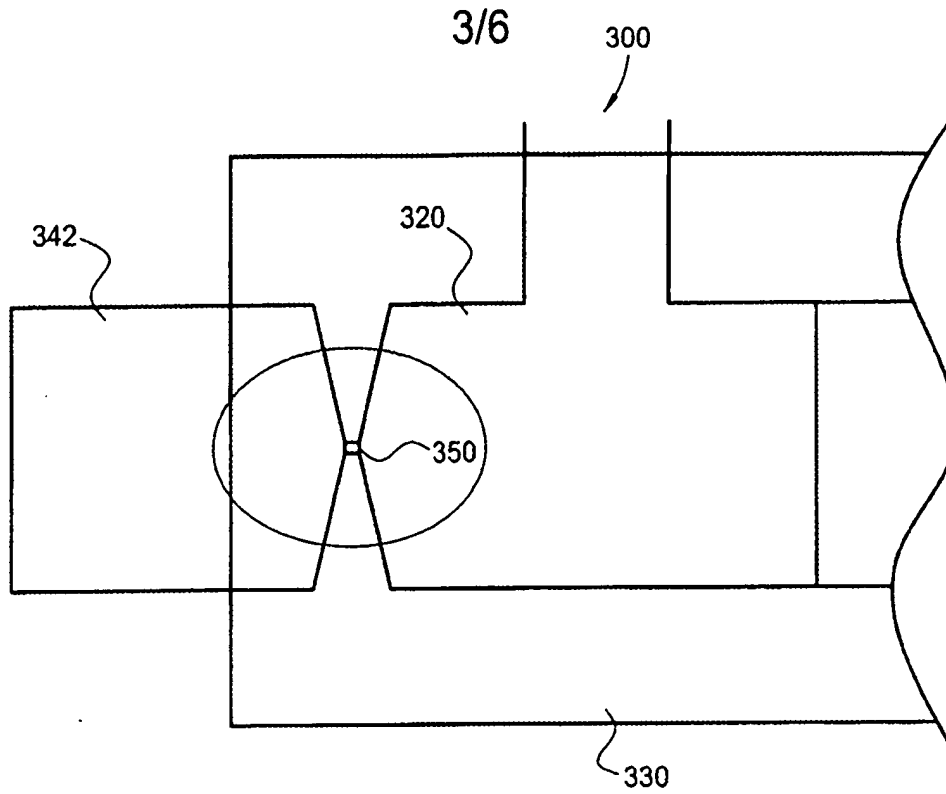


FIG. 5

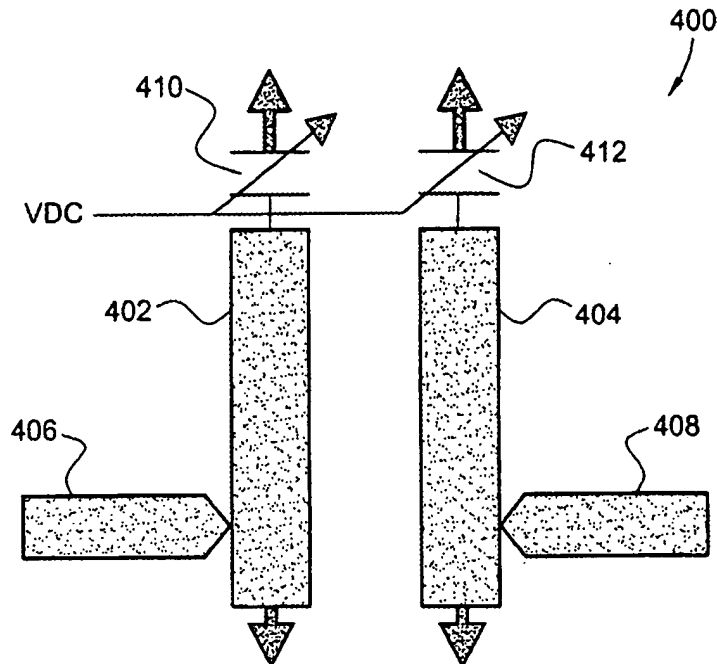


FIG. 6

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KWC	NRL	NRL CAPA- CITOR	NRL Q	KWC CAP	KWC Q	KWC Q	$f_0$	TUN- ING	COM- MENTS
SAM- PLE #	SAM- PLE #	(pF)	(0 VDC)	(pF)	(0 VDC)	(40 VDC)	(MHz)	(MHz/ V)	
01	NRL # 1-A	1.012	10.1	0.99	190		1622	~ 1.0	
02	NRL # 1-A	1.012	10.1	0.96	183		1605	~ 1.0	
01	NRL # 3-A	1.004	10.1	0.90	101	123	1610	~ 1.0	
02	NRL # 2-A	0.76	10.2	0.75	200		1900	~ 0.5	
06	NRL # 2-A	0.76	10.2	0.72	205			~0.5	DAMAGED, HIGH V
05	NRL # 2-A	0.76	10.2	0.71	196	200	1912	~ 0.5	

FIG. 7

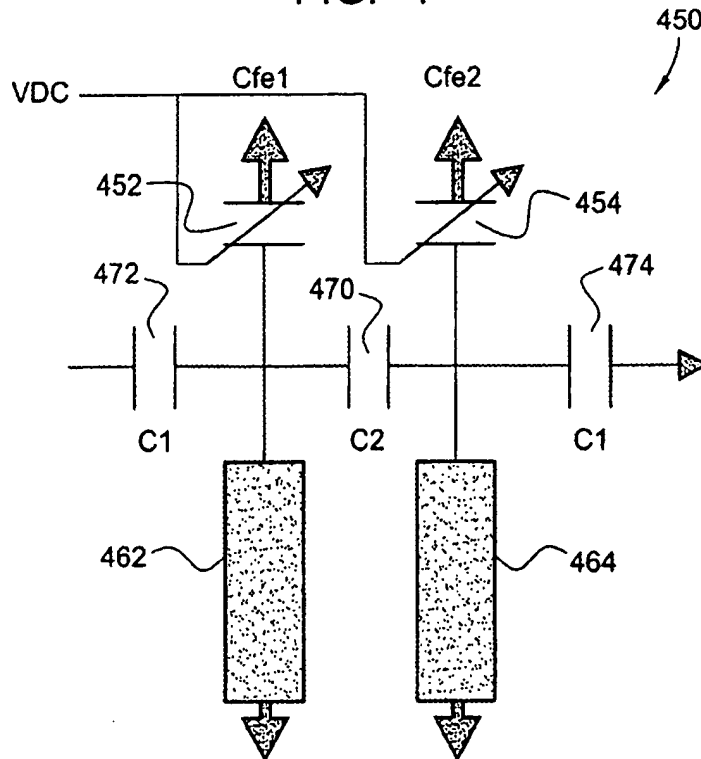


FIG. 8

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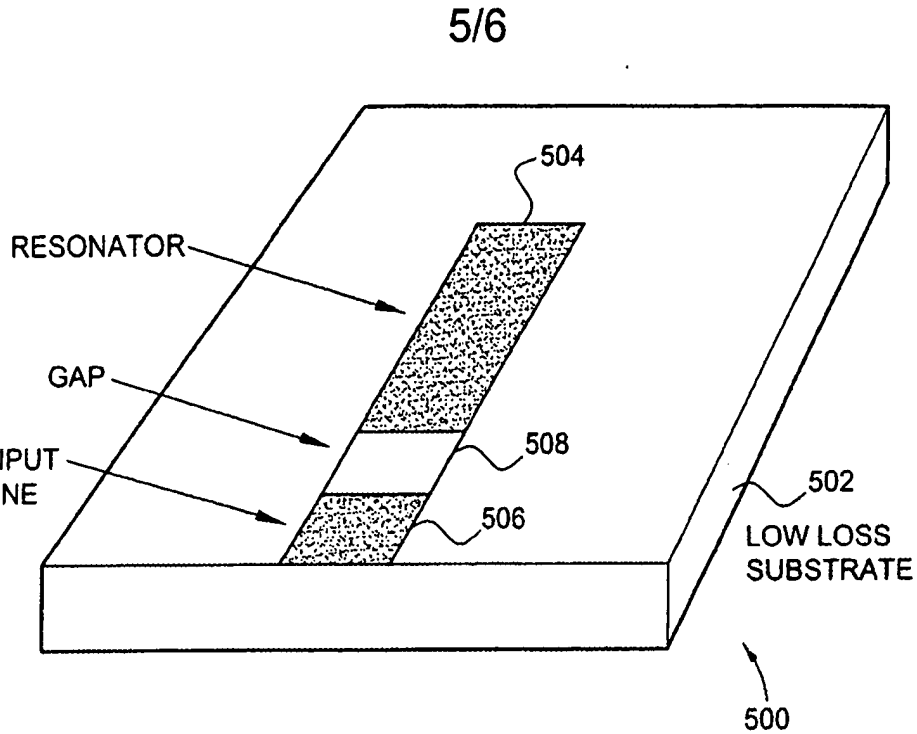


FIG. 9

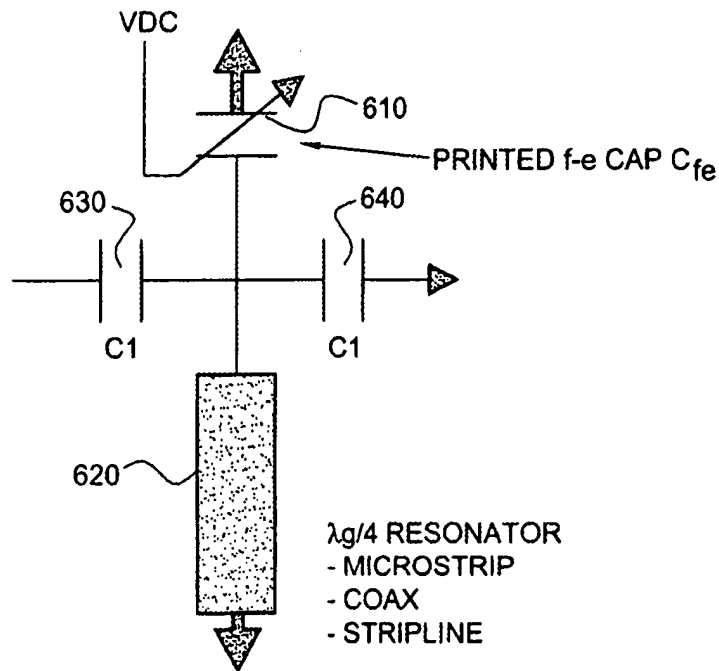
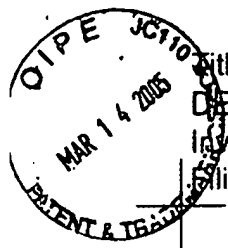


FIG. 10a



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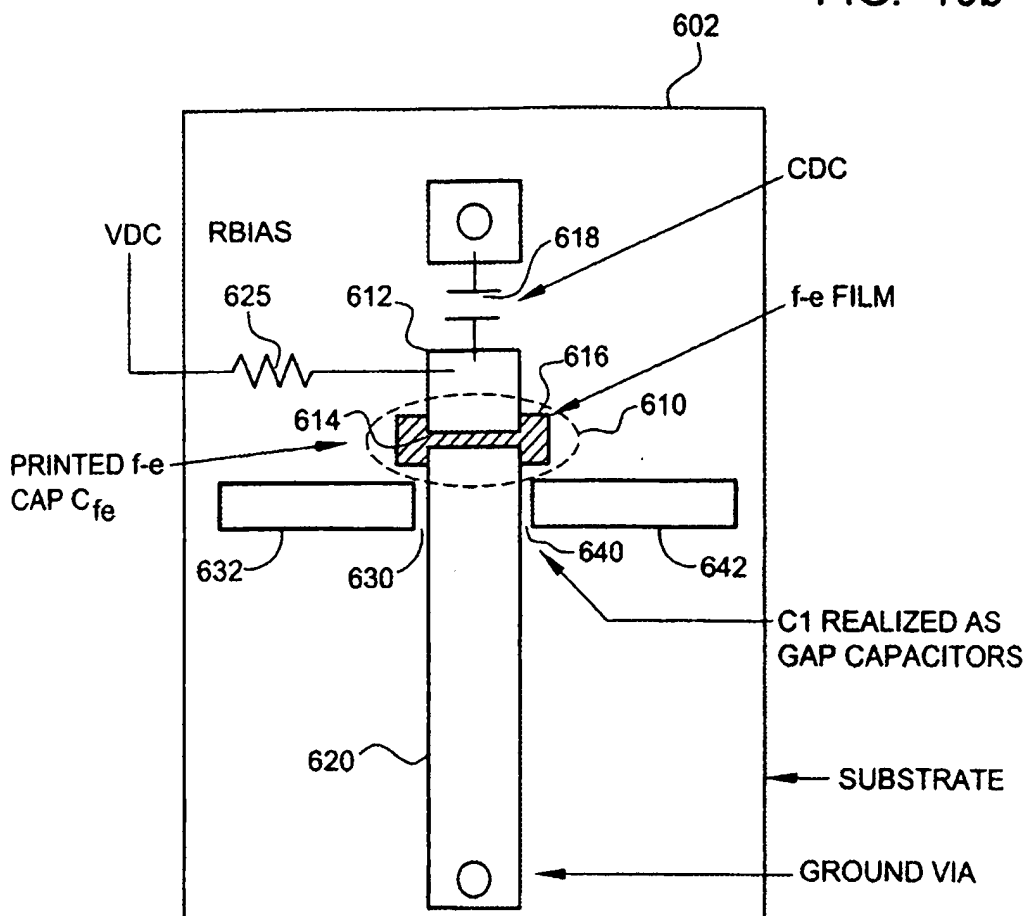
REPLACEMENT SHEET

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FIG. 10b



PLANAR REALIZATION OF SINGLE RESONATOR BPF.  
CAN BE REALIZED WITHOUT VIA'S USING GROUND PLANES  
& A WILTRON TEST FIXTURE.

## EXAMPLE OPERATING PARAMETERS

Temperature (degrees C)	Frequency (GHz)
Example 1: -50 to 100	Example 1: 0.25 to 7.0
Quality Factor (Q)	Example 2: 0.8 to 7.0
Example 1: > 80	Example 3: 0.25 to 2.5
Example 2: > 180	Example 4: 0.8 to 2.5
Capacitance (pF)	
Example 1: 0.3 to 3.0	
Example 2: 0.5 to 1.0	
Example 3: 0.8 to 1.5	

